

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

Application No.:

Filing Date:

Applicant: Mau-Song Chou

Group Art Unit:

Examiner:

Title: REMOTE DETECTION AND ANALYSIS OF CHEMICAL AND
BIOLOGICAL MATERIALS BY PASSIVE EMISSION OF
TERAHERTZ WAVE AGAINST A COLD BACKGROUND TARGET

Attorney Docket: NGC-00088 (000339-804)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicant hereby submits an Information Disclosure Statement for consideration by the Examiner.

I. LIST OF PATENTS, PUBLICATIONS, AND OTHER INFORMATION

The patents, publications and other information submitted for consideration by the Office (except unpublished U.S. patent applications) are listed on Form 1449 or PTO/SB/08a and 08b attached hereto.

II. COPIES

A. Submitted herewith is a legible copy of (i) each U.S. patent application publication and U.S. and foreign patent; (ii) each publication or that portion which caused it to be listed; (iii) for each cited pending U.S. application, the application specification including the claims, and any drawing of the application which caused it to be listed including the claims directed to that portion; and (iv) all other information or that portion which caused it to be listed.

B. Any patents, publications or other information which are listed on Form 1449 or PTO/SB/08a and 08b or on the copies of PTO-892, but which are not enclosed herewith, were previously cited by or submitted to the PTO in one of the following applications which has been relied upon for an earlier filing date under 35 U.S.C. § 120:

U.S. Serial Number

U.S. Filing Date

C. This is a PCT application in the entry of the National Phase in the United States. A copy of the International Search Report is attached for the Examiner's information. The documents listed on the International Search Report are listed on the attached Form-1449 or PTO/SB/08a and 08b for consideration by the Examiner and for listing on any patent resulting from this application. Since the International Search Report was from the US, EPO, or JPO search authorities, copies of these references should have been supplied to the USPTO under the trilateral agreement and are believed to be in the file of the above-identified application. (MPEP 1893.03(g))

III. CONCISE EXPLANATION OF THE RELEVANCE (check at least one box)

A. Except as may be indicated below in (B), all of the patents, publications or other information are in the English language (concise explanation not required).

B. A concise explanation of the relevance of each patent, publication or other information listed that is not in the English language is as follows (see 37 C.F.R. § 1.98(a)(3)):

1. See the attached foreign search report.
2. English translations are provided for:
3. Other:

C. The following additional information is provided for the Examiner's consideration.

IV. CROSS REFERENCE TO RELATED APPLICATION(S)

A. The Examiner is advised that the following co-pending application(s) contain(s) subject matter that may be related to the present application. By bringing this(these) application(s) to the Examiner's attention, Applicant(s) does(do) not waive the confidentiality provisions of 35 U.S.C. § 122.

<u>Serial No.</u>	<u>Filing Date</u>	<u>Art Unit</u>
10/456,098	June 6, 2003	
10/628,991	July 29, 2003	

V. THIS IDS IS BEING FILED UNDER

A. 37 C.F.R. § 1.97(b): (check only one box)

1. within three months of the filing date of a national application other than a continued prosecution application under § 1.53(d) (37 C.F.R. § 1.97(b)(1)). No fee or certification is required.

2. within three months of the date of entry of the national stage as set forth in §1.491 in an international application (37 C.F.R. § 1.97(b)(2)). No fee or certification is required.

3. before the mailing of a first Office Action on the merits (37 C.F.R. § 1.97(b)(3)). No fee or certification is required. In the event that a first Office Action on the merits has been issued, please consider this IDS under 37 C.F.R. § 1.97(c) and see the certification under 37 C.F.R. § 1.97(e) below; or, if no certification has been made, charge our deposit account a fee in the amount of \$180.00 as required by 37 C.F.R. § 1.17(p).

4. before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No fee or certification is required.

B. 37 C.F.R. § 1.97(c): (check only one box)

- before the mailing date of either any Final Office Action under 37 C.F.R. § 1.113, a Notice of Allowance under 37 C.F.R. § 1.311, or an action that otherwise closes prosecution.

1. No certification; therefore, a fee in the amount of \$180.00 is required by 37 C.F.R. § 1.17(p).

2. See the certification below. No fee is required.

C. 37 C.F.R. § 1.97(d):

- after the mailing date of either a Final Office Action under 37 C.F.R. § 1.113 or a Notice of Allowance under 37 C.F.R. § 1.311, yet on or before payment of the issue fee.

1. See the certification below. A fee in the amount of \$180.00 is required by 37 C.F.R. § 1.17(p).

VI. CERTIFICATION UNDER 37 C.F.R. § 1.97(e): (check only one box)

The undersigned hereby certifies that:

A. each item of information contained in this IDS was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS (See 37 C.F.R. § 1.97(e)(1)); or

B. no item of information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the

knowledge of the undersigned after making reasonable inquiry, no item of information contained in this IDS was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this IDS (See 37 C.F.R. § 1.97(e)(2)).

C. Some of the items of information were first cited in a communication from a foreign patent office. As to this information, the undersigned hereby certifies that each item of information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS. As to the remaining information, the undersigned hereby certifies that no item of this remaining information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in this IDS was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this IDS.

VII. PAYMENT OF FEES (check only one box)

A. A check in the amount of \$180.00 is enclosed for the above-identified fee.

B. Please charge Deposit Account No. 501612 in the amount of \$180.00 for the above-indicated fee. A duplicate copy of this paper is attached.

The above references are being cited only in the interest of candor and without any admission that they constitute statutory prior art, contain matter which anticipates the invention, or which would render the same obvious, either singly or in combination, to a person of ordinary skill in the art. Furthermore, this Information Disclosure Statement shall not be construed as a representation that a search has been made.

If it is determined that this IDS has been filed under the wrong rule, the PTO is requested to consider this IDS under the proper rule (with a petition if necessary) and charge the appropriate fee to Deposit Account No. 501612.

Please charge any additional fees or credit any overpayment pursuant to 37 C.F.R. § 1.16 or § 1.17 to Deposit Account No. 501612.

Respectfully submitted,

WARN, BURGESS & HOFFMANN, P.C.
Attorneys for Applicant(s)

P.O. Box 70098
Rochester Hills, MI 48307
(248) 364-4300

Dated: 9-16-03

JAM
Enclosures

By: John A. Miller

John A. Miller
Reg. No. 34985

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Substitute for form 1449/PTO		Complet if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>		Application Number	
		Filing Date	
		First Named Inventor	Mau-Song Chou
		Art Unit	
		Examiner Name	
Sheet	1	of	2
		Attorney Docket Number	NGC-00088 (000339-804)

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

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of 2

Complete if Known

Application Number	
Filing Date	
First Named Inventor	Mau-Song Chou
Art Unit	
Examiner Name	

U. S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

**Examiner
Signature**

Date Considered

¹EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ²Applicant's unique citation designation number (optional). ³See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ⁴Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁷Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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				Application Number	
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				First Named Inventor	Mau-Song Chou
				Art Unit	
				Examiner Name	
Sheet	2	of	2	Attorney Docket Number	NGC-00088 (000339-804)

NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			
		J. EVERSOLE, "Bio-aerosol Point Detection: Application of Optical Techniques", OSA Meeting on Optical Sensing for Homeland Security: A User-Driven Forum, Feb. 19-20, 2003, Washington DC.			
		E. HEILWEIL AND M.B. CAMPBELL, "Terahertz Spectroscopy for Chemical and Biological Warfare Agent Screening", OSA Meeting on Optical Sensing for Homeland Security: A User-Driven Forum, Feb. 19-20, 2003, Washington, DC.			
		D.L. WOOLARD, T.R. GLOUB, B.L. GELMONT, M. BYKHOVSKAIA, A.C. SAMUELS, D. COOKMEYER, J.L. HESLER, T.W. CROWE, J.O. JENSEN, J.L. JENSEN AND W.R. LOEROP, "Sub-millimeter-wave Phonon Modes in DNA Macromolecules", Physics Review E, 65, 051903-11 (2002).			
		T.R. GLOBUS, D.L. WOOLARD, A.C. SAMUELS, B.L. GELMONT, J. HESLER, T.W. CROWE, AND M. BYKHOVSKAIA, "Sub-millimeter-wave Fourier Transform Spectroscopy of Biological Macromolecules" Journal of Applied Physics, 91, 6105-6113 (2002).			
		E.R. BROWN, D.L. WOOLARD, A.C. SAMUELS, T. GLOBUS AND B. GELMONT, "Remote Detection of Bioparticles in the THz Region", 2002 IEEE MTT-S Digest, 1591-1594 (2002).			
		J. JU, H.L. CUI, A.C. SAMUELS, J. JENSEN AND D. WOOLAD, "Millimeter Wave Absorption Spectroscopy of Biopolymers", Proceedings of SPIE, Vol. 4572, 129-136 (2002).			
		D.L. WOOLARD, T. GLOUBS, E. BROWN, L. WERBOS, B. GELMONT AND A. SAMULES, "Sensitivity Limits & Discrimination Capability of THz Transmission Spectroscopy as a Technique for Biological Agent Detection", Proceedings of Fifth Joint Conference on Standoff Detection for Chemical & Biological Defense", 2001.			
		J. JU, H.L. CUI, A.C. SAMUELS, J. JENSEN AND D. WOOLARD, "Absorption Spectra of Aerosol Biopolymers in Millimeter Wave Frequency Range", Proceedings of Fifth Joint Conference on Standoff Detection for Chemical and Biological Defense", 2001.			
		N. GOPLSLAMI AND A.C. RAPTIS, "Millimeter-wave Radar Sensing of Airborne Chemicals, " IEEE Trans. Microwave Theory and Technique, 49 646-652 (2001).			
		D. WOOLARD, R. KAUL, R. SUENRAM, A.H. HIGHT WALKER, T. GLOBUS AND A. SAMUELS, "Terahertz Electronics for Chemical and Biological Warfare Agent Detection", 1999 IEEE MTT-S Digest, 925-928 (1999).			

Examiner Signature	Date Considered
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.
 This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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